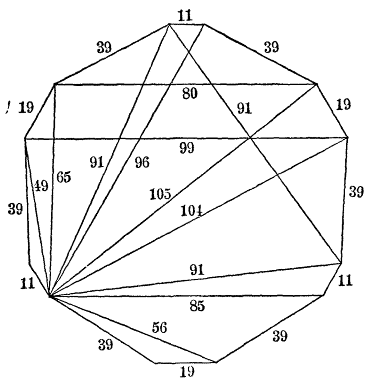
RELATING TO A GEOMETRIC REPRESENTATION OF INTEGRAL SOLUTIONS OF CERTAIN QUADRATIC EQUATIONS.

By Norman Anning, Chilliwack, British Columbia.

The cyclic dodecagon shown in the accompanying figure is an interesting special solution of the problem: To locate n points in the plane so that the $\binom{n}{2}$ distances shall be integral.



The fact that Ptolemy's Theorem may be verified in no less than 81 different ways entitles the group of numbers to rank with the most dignified of magic squares. The 13 numbers are all found among the integral solutions of

$$x^2 \pm xy + y^2 = 7^2 \cdot 13^2.$$

In like manner 40 integers which occur among the solutions of

$$x^2 \pm xy + y^2 = 7^2 \cdot 13^2 \cdot 19^2$$

may be exhibited as the sides and diagonals of a cyclic 24-gon. The sides in order are: 96, 361, 299, 209, 249, 209, 299, 361, 96, 361, ...

That a study of

$$x^2 + xy + y^2 = 7^2 \cdot 13^2 \cdot 19^2 \cdot 31^2$$

would yield a similar 48-gon is probable.